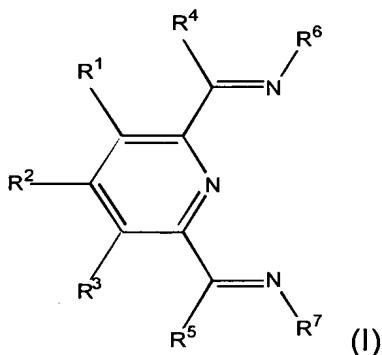


CLAIMS

What is claimed is:

1. A package made from a multilayer sheet or film containing at least one layer of a high density polyethylene, wherein said high density polyethylene is obtainable by polymerizing ethylene in the presence of a polymerization catalyst component which comprises an iron or cobalt complex of a compound of the formula (I)



wherein:

R^1 , R^2 , R^3 , R^4 and R^5 are each independently selected from the group consisting of hydrogen, a hydrocarbyl, an inert functional group and a substituted hydrocarbyl; and

R^6 and R^7 are each independently selected from the group consisting of aryl and substituted aryl.

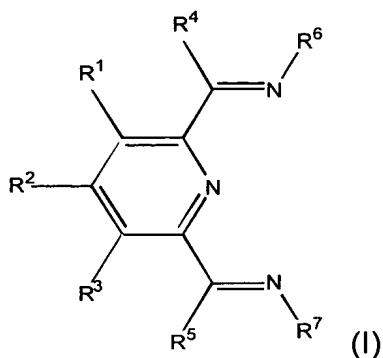
2. The package as recited in claim 1 wherein said package is a flexible package.

3. The package as recited in claim 1 wherein said package is a rigid package.

4. The package as recited in claim 1 wherein said complex is [2,6-diacetylpyridinebis((2,4,6-trimethyl)phenylimine)]iron dichloride.

5. The package as recited in claim 1 wherein said high density polyethylene is obtained by polymerizing ethylene in the presence of said polymerization catalyst component.

6. A rigid storage tank comprising a high density polyethylene obtainable by polymerizing ethylene in the presence of a polymerization catalyst component which comprises an iron or cobalt complex of a compound of the formula (I)



wherein:

R¹, R², R³, R⁴ and R⁵ are each independently selected from the group consisting of hydrogen, a hydrocarbyl, an inert functional group and a substituted hydrocarbyl; and

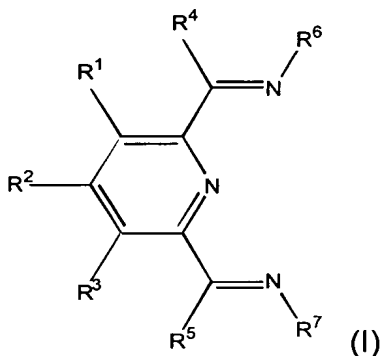
R⁶ and R⁷ are each independently selected from the group consisting of aryl and substituted aryl.

7. The rigid storage tank as recited in claim 1 wherein said complex is [2,6-diacetylpyridinebis((2,4,6-trimethyl)phenylimine)]iron dichloride.

8. The rigid storage tank as recited in claim 6, characterized in that said high density polyethylene is obtained by polymerizing ethylene in the presence of said polymerization catalyst component.

9. A process for making a package, comprising the steps of:

(a) polymerizing ethylene in the presence of a polymerization catalyst component to form high density polyethylene, the polymerization catalyst component comprising an iron or cobalt complex of a compound of the formula



wherein:

R^1 , R^2 , R^3 , R^4 and R^5 are each independently selected from the group consisting of hydrogen, hydrocarbyl, an inert functional group or substituted hydrocarbyl; and

R^6 and R^7 are aryl or substituted aryl;

(b) forming a multilayer sheet or film wherein at least one of the layers comprises said high density polyethylene; and

(c) forming said package from said multilayer sheet or film.

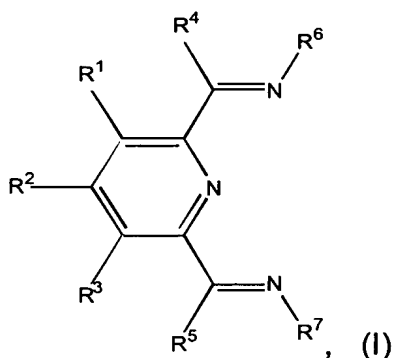
10. The process as recited in claim 9 wherein said package is a flexible package.

11. The process as recited in claim 9 wherein said package is a rigid package.

12. The process as recited in claim 9 wherein said complex is [2,6-diacetylpyridinebis((2,4,6-trimethyl)-phenylimine)]iron dichloride.

13. A process for making a rigid storage tank, comprising the steps of:

(a) polymerizing ethylene in the presence of a polymerization catalyst component to form high density polyethylene, the polymerization catalyst component comprising an iron or cobalt complex of a compound of the formula



wherein:

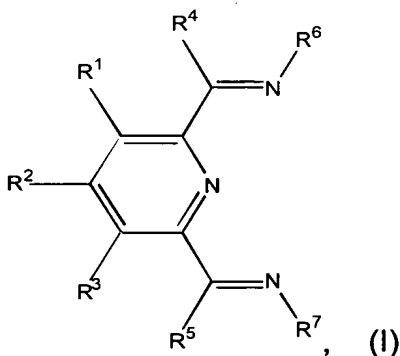
R¹, R², R³, R⁴ and R⁵ are each independently selected from the group consisting of hydrogen, hydrocarbyl, an inert functional group or substituted hydrocarbyl; and

R⁶ and R⁷ are aryl or substituted aryl;

(b) forming said high density polyethylene into said rigid storage tank.

14. The process as recited in claim 13 wherein said complex is [2,6-diacetylpyridinebis((2,4,6-trimethyl)-phenylimine)]iron dichloride.

15. A process for lowering the water vapor and/or oxygen transmission rates of an HDPE-containing package manufactured at least in part with a first HDPE, comprising the step of replacing, during the manufacture of said package, at least a portion of the first HDPE with a second HDPE obtainable by polymerizing ethylene in the presence of a polymerization catalyst component which comprises an iron or cobalt complex of a compound of the formula (I)



wherein:

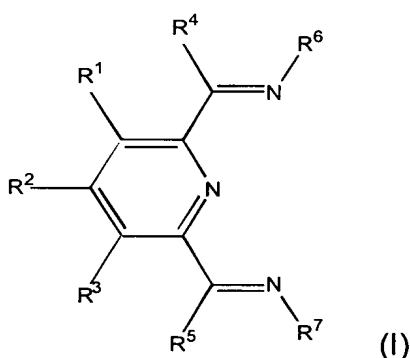
R¹, R², R³, R⁴ and R⁵ are each independently selected from the group consisting of hydrogen, a hydrocarbyl, an inert functional group and a substituted hydrocarbyl; and

R⁶ and R⁷ are each independently selected from the group consisting of aryl and substituted aryl.

16. The process as recited in claim 15 wherein said second HDPE is obtained by polymerizing ethylene in the presence of said polymerization catalyst component.

17. The process as recited in claim 15 wherein said complex is [2,6-diacetylpyridinebis{(2,4,6-trimethyl)phenylimine}]iron dichloride.

18. A process for lowering the water vapor and/or oxygen transmission rates of a package manufactured from one or more layers of a first HDPE, comprising the step of replacing, during the manufacture of said package, at least a portion of at least one of the layers of the first HDPE with a layer of a second HDPE obtainable by polymerizing ethylene in the presence of a polymerization catalyst component which comprises an iron or cobalt complex of a compound of the formula (I)



wherein:

R¹, R², R³, R⁴ and R⁵ are each independently selected from the group consisting of hydrogen, a hydrocarbyl, an inert functional group and a substituted hydrocarbyl; and

R⁶ and R⁷ are each independently selected from the group consisting of aryl and substituted aryl.

19. The process as recited in claim 18 wherein said second HDPE is obtained by polymerizing ethylene in the presence of said polymerization catalyst component.

5

20. The process as recited in claim 18 wherein said complex is [2,6-diacetylpyridinebis{(2,4,6-trimethyl)phenylimine}]iron dichloride.